

## Life Years Gained (LYG)

### What is LYG?

- Life years gained (LYG) measures the additional number of years of life a person lives as a result of receiving treatment without considering any improvements in quality of life.
- LYG are calculated as the additional life expectancy gained as a result of avoided death.

### How is LYG different?

- LYG's limited focus on life extension alone and omission of quality of life is a key differentiator from other cost-effectiveness metrics.

### How does LYG measure up?

- LYG can discriminate against populations with fewer years left to live (e.g., older adults or those with disabling conditions) because they have less potential years of life to gain compared to younger and less sick populations.
- The LYG metric does not capture quality of life and so fully ignores clinical symptoms and other health impacts (e.g., pain or physical ability) and non-health impacts (e.g., ability to work).
- As a result, the LYG metric is biased against largely non-fatal conditions (e.g., blindness, depression, rheumatoid arthritis) because the LYG metric limits the evaluation of a medicine's effectiveness on mortality.
- LYG is measured in averages and ignores important patient differences in that affect risks, preferences, and value in health such as social determinants of health, clinical factors, and different responses to treatments.
- The LYG methodology does not explicitly incorporate equity concerns related to race, ethnicity, or socioeconomic factors.

### Who is using LYG?

- Sometimes used by European HTA organizations including France and Spain.

### What is the broader community saying?

- Barrios, Jose, et al. noted that further information is needed for decision-making for economic health care evaluations in Spain. - *"... An intervention could be cost-effective considering cost per LYG rather than cost per QALY gained when it involves a better survival outcome but has less quality of life effectiveness (for example, having more side effects, disease complications, survival rates in a severe health state). This would be the case for certain cancers, where life years are gained when disease severity is associated with low levels of quality of life (for example, breast cancer in the studies reviewed). The opposite could occur in an intervention in which the quality of life is greatly improved but there is a limited improvement in survival."*